



In re Application of:
Chung et al.

Patent No.: 6,936,906

Issued: August 30, 2005

Serial No.: 09/965,373

Filed: September 26, 2001

For: INTEGRATION OF BARRIER
LAYER AND SEED LAYER

§
§
§ Group Art Unit: 2814

§
§ Examiner: Wai-Sing Louie

Certificate

AUG 31 2006

of Correction

Certificate of Correction Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING 37 CFR 1.8	
I hereby certify that this correspondence is being deposited on <u>8/24/06</u> , 2006 with the United States Postal Service as First Class Mail in an envelope addressed to: Certificate of Correction Branch, Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.	
<u>8/24/06</u> Date	<u>Kin 212</u> Signature

Dear Sir:

REQUEST FOR CERTIFICATE OF CORRECTION

Attached is a Certificate of Correction for correcting several errors throughout the printed patent.

The missing references were cited by the Applicant in an Information Disclosure Statement filed on August 31, 2004. It appears that these references were lost, and thus they do not appear on the printed patent. Attached is a copy of the PTO/SB/08a as originally submitted on August 31, 2004, as well as a copy of the stamped return receipt postcard showing evidence that the Patent Office acknowledged receipt of this Information Disclosure Statement with (206) references.

Applicants submit that the errors in the dependency of claims 14 and 15 were not made by the applicants, but were made during the printing of the patent.

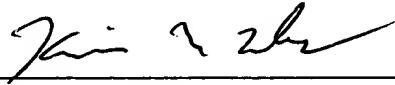
08/30/2006 SFELEKE2 00000022 200782 6936906

01 FC:1811 100.00 DA

AUG 31 2006

Applicants submit that at least one of the other errors mentioned above was made by the applicants. Therefore, please charge the fee of \$100.00 to deposit account no. 20-0782/APPM/6303.02 (KMT).

Respectfully submitted,



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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,936,906

Page 1 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the Cover of the Patent

Item [56], References Cited, U.S. PATENT DOCUMENTS: Please include the following references:

6,686,271	2/2004	Raaijmakers et al.
6,660,660	12/2003	Haukka et al.
6,632,279	10/2003	Ritala et al.
6,630,201	10/2003	Chiang et al.
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6,372,598	4/2002	Kang et al.
6,358,829	3/2002	Yoon et al.
6,348,376	2/2002	Lim et al.

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PATENT NO. : 6,936,906

Page 2 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

6,342,277	1/2002	Sherman et al.
6,335,240	1/2002	Kim et al.
6,284,646	9/2001	Leem
6,207,487	3/2001	Kim et al.
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20040033698	2/2004	Lee et al.
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20030190804	10/2003	Glenn et al.
20030190497	10/2003	Yang et al.
20030190423	10/2003	Yang et al.
20030186495	10/2003	Saanila et al.
20030185980	10/2003	Endo

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20030173586	9/2003	Moriwaki et al.
20030172872	9/2003	Thakur et al.
20030168750	9/2003	Basceri et al.
20030165615	9/2003	Aaltonen et al.
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20030013320	1/2003	Kim et al.
20030013300	1/2003	Byun
20020197881	12/2002	Ramdani et al.
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20020076481	6/2002	Chiang et al.
20020074588	6/2002	Lee
20020073924	6/2002	Chiang et al.

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AUG 31 *luuu*

UNITED STATES PATENT AND TRADEMARK OFFICE
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PATENT NO. : 6,936,906

Page 5 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

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20020068458	6/2002	Chiang et al.
20020052097	5/2002	Park
20020048635	4/2002	Kim et al.
20020041931	4/2002	Suntola et al.
20020031618	3/2002	Cho et al.
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20020020869	2/2002	Park
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20010054769	12/2001	Raaijmakers et al.
20010054730	12/2001	Kim et al.
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20010009140	7/2001	Bondestam et al.
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Item [56], References Cited, FOREIGN PATENT DOCUMENTS: Please include the following references:

EP 1,142,894 A2	10/2001	Morman et al.
EP 1,167,569 A1	1/2002	Park
JP 07-300649 A	11/1995	Haruo
JP 2001-111000	12/2002	Jong-Ho et al.
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WO 02/45871 A1	6/2002	Chiang et al.
WO 03/044242 A2	5/2003	Chen et al.

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are hereby corrected as shown below:

Item [56], References Cited, OTHER PUBLICATIONS: Please include the following references:

Applied Phys. Lett. 71 (25), December 22, 1997 (3604-06)

Chang-Wook et al. "Growth and Characterization of Aluminum Oxide (Al_2O_3) Thin Films by Plasma-Assisted Atomic Layer Controlled Deposition," J. Korean Inst. Met. Mater., Vol. 38, No. 10, Oct. 2000 pp. 1395-1399.

Chang-Wook et al. "Plasma-assisted Atomic Layer Growth of High-Quality Aluminum Oxide Thin Films," Jpn. J. Appl. Phys. 1, Vol. 40, No. 1, Jan. 2001 pp. 285-289.

Clark-Phelps et al. "Engineered Tantalum Aluminate and Hafnium Aluminate ALD Films for Ultrathin Dielectric Films with Improved Electrical and Thermal Properties," Mat. Res. Soc. Symp. Proc. Vol. 670 (2001).

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Hwang et al. "Nanometer-Size α -PbO₂-type TiO₂ in Garnet: A Thermobarometer for Ultrahigh-Pressure Metamorphism," Science Vol. 288 (14 Apr 2000).

International Search Report for PCT/US02/28715 dated May 30, 2003 (AMAT/6303-PCT).

Juppo et al. "Deposition of Copper Films by an Alternate Supply of CuCl and Zn," Journal of Vacuum Science & Technology, Vol. 15, No. 4 (July 1997), pp. 2330-3.

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Page 7 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Paranjepe et al. "Atomic Layer Deposition of AlO₃ for Thin Film Head Gap Applications," J. Elec. Soc., Vol. 148, No. 9, Sept., 2001 pp. G465-471.

PCT Written Opinion for PCT/US02/28715 DATED July 28, 2004 (AMAT/6303-PCT).

Proceedings of the IEEE 1998 International Interconnect Technology Conference - San Francisco, California, June 1-3, 1998.

Ritala et al. "Atomic Force Microscopy Study of Titanium Dioxide Thin Films Grown by Atomic Layer Epitaxy," Thin Solid Films, Vol. 228, No. 1-2 (15 May 1993), pp. 32-35.

Ritala et al. "Atomic Layer Deposition of Oxide Thin Films with Metal Alkoxides as Oxygen Sources," Science Vol. 288 14 Apr. 2000.

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In the Specification

Column 2, Line 30: Change "alloy" to --alloy--

Column 2, Line 34: Delete "of"

Column 3, Line 10: Change "embodiment" to --embodiments--

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AUG 31 2005

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,936,906

Page 8 of 8

APPLICATION NO. : 09/965,373

DATED : Aug. 30, 2005

INVENTOR(S) : Hua CHUNG, Ling CHEN, Jick YU, Mei CHANG

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 5, Line 56: After "Ta(N(Et)Me)₅", insert --,--

Column 6, Line 18: Insert a comma after "(C₄H₉N₂H₃)"

Column 8, Line 36: Change "include" to --includes--

In the Claims

Column 16, Claim 7, Line 17: Change the colon to a semicolon

Column 16, Claim 14, Line 50: Change "7" to --1--

Column 16, Claim 15, Line 54: Change "7" to --1--

Column 16, Claim 18, Line 63: Change "n" to --in--

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AUG 31 2000



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Where Application of:
Chung, et al.

Serial No.: 09/963,373

Confirmation No.: 6509

Filed: September 26, 2001

For: INTEGRATION OF
BARRIER LAYER AND
SEED LAYER

§ Group Art Unit: 2814

§ Examiner: Wai Sing Louie

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

CERTIFICATE OF MAILING

37 CFR 1.8

I hereby certify that this correspondence is being deposited on
August 31, 2004 with the United States Postal Service as First
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3/31/04

Kin Y. 2004

Date

Signature

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

While the information submitted in this Supplemental Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

In accordance with 37 CFR § 1.97, this Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/AMAT/6303.02/KMT.

Respectfully submitted,


Keith M. Tackett
Registration No. 32,008
MOSER, PATTERSON & SHERIDAN, L.L.P.
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Attorney for Applicant(s)

Substitute for form 1449A/PTO				Application Number	09/963,373
				Filing Date	September 26, 2001
				First Named Inventor	Chung, et al.
				Group Art Unit	2814
				Examiner Name	Wai Sing Louie
				Attorney Docket Number	AMAT/6303.02/CPICOPPER/PJS
Sheet	1	of	9	Submission Date	August 31, 2004

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PTO-1449A
SUPPLEMENTAL INFORMATION
DISCLOSURE STATEMENT
APPLICANT

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U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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	A2	US-6660660 B2	12/09/2003	Haukka, et al.	
	A3	US-6632279 B1	10/14/2003	Ritala, et al.	
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Sheet

2

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9

Application Number	09/963,373
Filing Date	September 26, 2001
First Named Inventor	Chung, et al.
Group Art Unit	2814
Examiner Name	Wai Sing Louie
Attorney Docket Number	AMAT/6303.02/CPICOPPER/PJS

Submission Date

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	A54	US-20040018723 A1	01/29/2004	Byun, et al.	

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Application Number	09/963,373
Filing Date	September 26, 2001
First Named Inventor	Chung, et al.
Group Art Unit	2814
Examiner Name	Wai Sing Louie
Attorney Docket Number	AMAT/6303.02/CPICOPPER/PJS

Submission Date

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		Number-Kind Code ² (if known)			
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TRADEMARK OFFICE

Application Number	09/963,373
Filing Date	September 26, 2001
First Named Inventor	Chung, et al.
Group Art Unit	2814
Examiner Name	Wai Sing Louie
Attorney Docket Number	AMAT/6303.02/CPICOPPER/PJS

Sheet

4

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U.S. PATENT DOCUMENTS

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		Number-Kind Code ² (if known)			
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Sheet

5

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9

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	A117	US-20030013300 A1	01/16/2003	Byun	
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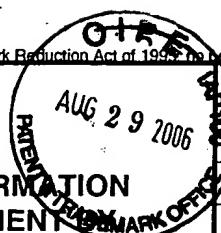
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6

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9

Application Number	09/963,373
Filing Date	September 26, 2001
First Named Inventor	Chung, et al.
Group Art Unit	2814
Examiner Name	Wai Sing Louie
Attorney Docket Number	AMAT/6303.02/CPICOPPER/PJS

Submission Date

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U.S. PATENT DOCUMENTS

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		Number-Kind Code ² (if known)			
	A139	US-20020106846 A1	08/08/2002	Seutter, et al.	
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Sheet

7

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	A167	US-20010028924 A1	10/11/2001	Sherman	
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8

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9

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	B17	WO 03/044242 A2	05/30/2003	Chen, et al.		

NON PATENT LITERATURE DOCUMENTS

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	C1	Applied. Phys. Lett. 71 (25), December 22, 1997 (3604-6)	
	C2	Chang-Wook, et al. "Growth and Characterization of Aluminum Oxide (Al ₂ O ₃) Thin Films by Plasma-Assisted Atomic Layer Controlled Deposition," J. Korean Inst. Met. Mater., Vol. 38, No. 10, Oct. 2000 pp.1395-1399	
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	C5	Eisenbraum, et al. "Atomic Layer Deposition (ALD) of Tantalum-based materials for zero thickness copper barrier applications," Proceedings of the IEEE 2001 International Interconnect Technology Conference (Cat. No. 01EX461) 2001	
	C6	Hwang, et al. "Nanometer-Size α -PbO ₂ -type TiO ₂ in Garnet: A Thermobarometer for Ultrahigh-Pressure Metamorphism," Science Vo. 288 (14 Apr 2000)	
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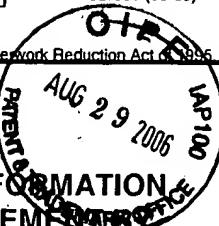
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9

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9

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	C15	Martensson, et al. "Use of Atomic Layer Epitaxy for Fabrication of Si/TiN/Cu Structures," Journal of Vacuum Science & Technology, Vol. 17, No. 5 (Sept 1999), pp.2122-8	
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DOCKET No.: AMAT/6303.02/CP1/COPPER/PJS
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FILED: September 26, 2001
APPLICANT: Applied Materials, Inc.
INVENTOR: Chung, et al.

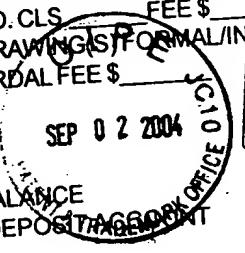
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